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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,319	10/22/2003	Philip D. Nguyen	2003-IP-010380U1	5926
7590	10/01/2007		EXAMINER	
Robert A. Kent Halliburton Energy Services 2600 S. 2nd Street Duncan, OK 73536-0440			TSOY, ELENA	
			ART UNIT	PAPER NUMBER
			1762	
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			10/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/691,319

Applicant(s)

NGUYEN ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-32 and 34-77 is/are pending in the application.
- 4a) Of the above claim(s) 20-24, 27, 30, 37-41, 44, 47, 50-64 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 25, 26, 28, 29, 31, 32, 34-36, 42, 43, 45, 46, 48, 49, 65, 66 and 68-77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 13, 2007 has been entered.

Applicant Initiated Interview

At Applicant's Initiated Interview held on 9/12/2007, the Examiner agreed with Applicants that non-examined claims should have been withdrawn as being directed to non-elected *species* not non-elected inventions.

Response to Amendment

Amendment filed on September 13, 2007 has been entered. Claim 33 has been cancelled. New claim 77 has been added. Claims 18-32, and 34-77 are pending in the application. Claims 28-29 rejoined for examination since they depend now on elected species. Claims 20-24, 27, 30, 37-41, 44, 47, 50-64, and 67 are withdrawn from consideration as directed to a non-elected ~~invention and~~ species.

Claim Objections

Objection to claims 28-29 because of the informalities has been withdrawn due to amendment.

2. Claims 43, 74 are objected to because of the following informalities: "d'limonene" should be changed to "d-limonene".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejection claims 28 and 29 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to amendment.

3. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Language of claim 34 is confusing because it depends on itself. For examining purposes the phrase was interpreted as depending on claim 18.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 35-36, 42, 45-46, 48-49, 68-73, 75, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al (US 20020048676) in view of Sielcken et al (US 5585524).

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McDaniel et al are applied here for the same reasons as set forth in paragraph 3 of the Office Action mailed on 1/18/2007.

As to amendment, McDaniel et al teach low density composite particles made of a resin binder and filler particles selected from at least one member of the group consisting of minerals and low density fillers (See P59), for use as proppants in subterranean formations either to prop open subterranean formation fractures or for gravel packing (See Abstract). The proppants are carried into the well by suspending them in additional fluid to fill the fracture (**claimed fracturing fluid**) with a slurry of proppant in the fluid (See P5).

Resin coated proppants come in two types: precured and curable: precured resin coated proppants comprise a resin coating that is already cured before introducing into the well (See P13), and the curable proppant containing a resin coating of e.g. phenolic, is designed to crosslink under the stress and temperature conditions existing in the well formation (See P 14). The composite particles **may be** made by mixing a stream of the filler particles with a stream of a first portion of binder to form substantially homogeneous core particles of granulated product comprising the filler particles and the first binder stream, and to strengthen the composite particles, a stream of a second portion of binder **may be** coated onto the core particles of granulated product (See P59). The core binders are *preferably* precured (i.e. pre-curing is *optional*); the outer coating resins are **curable** or procured (See P59). The composite particles are made in a mixer/granulator operated typically as a **batch** process (See P246-250).

McDaniel et al fail to teach that the composite particles are made by on-the-fly mixing; suspending them in additional fluid on-the-fly.

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It is within the level of ordinary skill to operate a process continuously. In re Dilnot 138 USPQ 248 (CCPA 1963); In re Korpi 73 USPQ 229 (CCPA 1947); In re Lincoln 53 USPQ 40 (CCPA 1942). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a mixing process of McDaniel et al *continuously* with the expectation of providing the desired composite particles since it is within the level of ordinary skill to operate a process continuously.

Sielcken et al teach that a process that can be carried out in a stirred reactor as batchwise process may be carried out as a *continuous* process using a stirred tank reactor or a tubular reactor (See column 5, lines 61-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of McDaniel et al continuously in a tubular reactor (**claimed on-the-fly mixing**) since Sielcken et al teach that a process that can be carried out in a stirred reactor as batchwise process may be carried out as a *continuous* process using a stirred tank reactor or a tubular reactor.

The cited prior art does not expressly teach that mineral particles are added to a binder stream *before* the low density fillers such that the low density fillers are adhered to a binder coated mineral particles, as required by Amendment.

It is well settled that selection of any order of mixing ingredients or selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results is prima facie obvious In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930); In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried pout a process of the cited prior

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art by adding mineral particles to a binder stream *before* the low density fillers, with the expectation of providing the desired composite particles, since it is well settled that selection of any order of mixing ingredients or selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results is prima facie obvious, and McDaniel et al do not limit their teaching to a particular order of mixing ingredients.

The Examiner takes official notice that pumping the servicing fluid into a subterranean formation is implied.

As to claims 42, 45-46, McDaniel et al teach that the binder may be a polyester resin (See P70), glycidyl ether (See P185) or epoxies such as bisphenol A-epichlorohydrin resin (See P187) or a natural resin (claimed tackifying composition) (See P75).

3. Claims 18-19, 25, 28-29, 31-32, 34, and 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al, further in view of Martin et al (US 4,969,523).

McDaniel et al in view of Sielcken et al are applied here for the same reasons as above. McDaniel et al teach that the filler particles should be inert to components in the subterranean formation, e.g., well treatment fluids, and be able to withstand the conditions, e.g., temperature and pressure, in the well (See P81). However, McDaniel et al fail to teach that polystyrene divinylbenzene may be used as the density reducing material.

Martin et al teach that a combination of first and second particles having a density within the range of about 0.7 to about 4.0 (See column 3, lines 12-26), wherein first particles has a density selected from the lower portion of the density range such as polystyrene divinylbenzene

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(SVDB) (See column 3, line 28) and the second particles has a density selected from the upper portion of the density range such as sand (See column 3, line 33) may be used in a servicing fluid for gravel packing of subterranean well (See column 2, lines 12-15). In other words, Martin et al teach that low density SVDB is suitable for the use in a servicing fluid, i.e. it is inert to components in the subterranean formation, e.g., well treatment fluids, and is able to withstand the conditions, e.g., temperature and pressure, in the well.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used low density SVDB as the density reducing material in McDaniel et al since Martin et al teach that low density SVDB is suitable for the use in a servicing fluid, and McDaniel et al do not limit the density reducing material.

4. Claims 35-36, 45, 49, 68-70, 72, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al (US 4,493,875) in view of in view of Sielcken et al.

Beck et al disclose a method of treating a subterranean formation comprising the steps of: providing a servicing fluid comprising reduced-density coated particulate proppant (See column 1, lines 11-15, 57-68). Such a coating may be applied to a great number of dense, high-strength core particles by the steps of: (1) mixing the core particles with adhesive to provide adhesive-coated core particles, (2) while the adhesive is tacky, mixing the coated core particles with hollow microparticles (preferably hollow ceramic microparticles) to adhere a plurality of the microparticles to each coated core, and (3) curing each adhesive composition to a nontacky state while keeping the individual coated core particles substantially out of adherent contact with each

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other (See column 2, line 61 to column 3, line 8column 6, lines 34-45). The Examiner takes official notice that pumping the servicing fluid into a subterranean formation is implied.

Beck et al fail to teach that the composite particles are made by on-the-fly mixing.

Sielcken et al are applied here for the same reasons as above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out a process of Beck et al by adding mineral particles to a binder stream *before* the low density fillers, with the expectation of providing the desired composite particles, since it is well settled that selection of any order of mixing ingredients or selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results is prima facie obvious, and McDaniel et al do not limit their teaching to a particular order of mixing ingredients.

5. Claims 18-19, 25, 28-29, 31-32, 34, 65-66, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al, further in view of Martin et al, and further in view of Nguyen et al (US 5908073).

The cited prior art is applied here for the same reasons as above. McDaniel et al do not expressly teach that a fracturing fluid is pumped into a subterranean formation. However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract).

As to claim 34, McDaniel et al fails to teach that the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly.

Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the

bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly (See column 5, lines 47-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have suspended the reduced-density, coated particulates in a servicing fluid in McDaniel et al on-the-fly since Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly.

6. Claims 42, 46, 73, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al in view of Sielcken et al, as applied above, and further in view of McDaniel et al for the same reasons of record as set forth in paragraph 5 of the Office Action mailed on 1/18/2007.

7. Claims 26, 43, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Sielcken et al in view of Martin et al/McDaniel et al in view of Sielcken et al in view of Martin et al in view of Nguyen et al/McDaniel et al in view of Sielcken et al/ Beck et al in view of Sielcken et al/Beck et al in view of Sielcken et al in view of McDaniel et al/, as applied above, and further in view of Murphey et al (US 4665988) for the reasons of record set forth in paragraph 8 of the Office Action mailed on 1/18/2007.

Response to Arguments

8. Applicant's arguments with respect to rejected claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy, Ph.D.
Primary Examiner
Art Unit 1762

**ELENA TSOY
PRIMARY EXAMINER**



September 24, 2007